



DOCKET NO.: M0925.70087US00

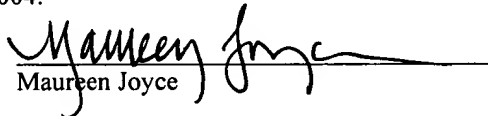
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Anne M. Mayes et al.
Serial No.: 09/862,916
Confirmation No.: 9694
Filed: May 22, 2001
For: POLYMER ELECTROLYTE, INTERCALATION COMPOUNDS
AND ELECTRODES FOR BATTERIES

Examiner: Ruthkosky, Mark
Art Unit: 1745

CERTIFICATE OF MAILING UNDER 37 C.F.R. §1.8(a)

The undersigned hereby certifies that this document is being placed in the United States mail with first-class postage attached, addressed to MAIL STOP AMENDMENT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the 18 day of November, 2004.


Maureen Joyce

Mail Stop Amendment
Commissioner For Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Transmitted herewith are the following documents:


- Information Disclosure Statement
- PTO Form 1449 with cited references
- Return Receipt Postcard

If the enclosed papers are considered incomplete, the Mail Room and/or the Application Branch is respectfully requested to contact the undersigned at (617) 646-8000, Boston, Massachusetts.

A check is not enclosed. If a fee is required, the Commissioner is hereby authorized to charge Deposit Account No. 23/2825. A duplicate of this sheet is enclosed.

Respectfully submitted,

By:


Timothy J. Oyer, Ph.D., Reg. No. 36,628
Tani Chen, Sc.D., Reg. No.: 52,728
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600 Atlantic Avenue
Boston, Massachusetts 02210-2206
Telephone: (617) 646-8000

Date: November 18, 2004

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Signature

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

STATEMENT FILED PURSUANT TO THE DUTY OF
DISCLOSURE UNDER 37 C.F.R. §§1.56, 1.97 AND 1.98

Sir:

Pursuant to the duty of disclosure under 37 C.F.R. §§1.56, 1.97 and 1.98, the Applicants request consideration of this Information Disclosure Statement.

PART I: Compliance with 37 C.F.R. §1.97

This Information Disclosure Statement has been filed before the mailing of a first Office Action after the filing of a request for continued examination under 37 C.F.R. §1.114. No fee or certification is required.

PART II: Information Cited

The Applicants hereby make of record in the above-identified application the information listed on the attached form PTO-1449 (modified). The order of presentation of the references should not be construed as an indication of the importance of the references.

PART III: Remarks

Documents cited anywhere in the Information Disclosure Statement are enclosed unless otherwise indicated. It is respectfully requested that:

1. The Examiner consider completely the cited information, along with any other information, in reaching a determination concerning the patentability of the present claims;
2. The enclosed form PTO-1449 be signed by the Examiner to evidence that the cited information has been fully considered by the Patent and Trademark Office during the examination of this application;
3. The citations for the information be printed on any patent which issues from this application.

By submitting this Information Disclosure Statement, the Applicants make no representation that a search has been performed, of the extent of any search performed, or that more relevant information does not exist.

By submitting this Information Disclosure Statement, the Applicants make no representation that the information cited in the Statement is, or is considered to be, material to patentability as defined in 37 C.F.R. §1.56(b).

By submitting this Information Disclosure Statement, the Applicants make no representation that the information cited in the Statement is, or is considered to be, in fact, prior art as defined by 35 U.S.C. §102.

Notwithstanding any statements by the Applicants, the Examiner is urged to form his own conclusion regarding the relevance of the cited information.

Serial No.: 09/862,916
Conf. No.: 9694

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Art Unit: 1745

An early and favorable action is hereby requested.

Respectfully submitted,

By:



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FORM PTO-1449/A and B (Modified)

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

APPLICATION NO.: 09/862,916 ATTY. DOCKET NO.: M0925.70087US00
 FILING DATE: May 22, 2001 CONFIRMATION NO.: 9694
 APPLICANT: Anne M. Mayes et al.
 GROUP ART UNIT: 1745 EXAMINER: Ruthkosky, Mark

Sheet 1 of 3

U.S. PATENT DOCUMENTS

Examiner's Initials	Cite No.	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication or of issue of Cited Document MM-DD-YYYY
		Number	Kind Code		
	A7	4,758,483		Armand et al.	07-19-1998
	A8	5,051,211		Ward et al.	09-24-1991
	A9	6,787,232	B1	Chiang et al.	09-07-2004

FOREIGN PATENT DOCUMENTS

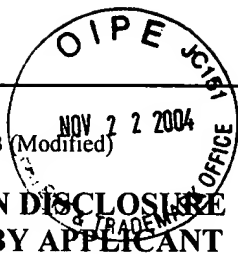
Examiner's Initials	Cite No.	Foreign Patent Document			Name of Patentee or Applicant of Cited Document (not necessary)	Date of Publication of Cited Document MM-DD-YYYY	Translation (Y/N)
		Office/Country	Number	Kind Code			
	B9	EP	0 421421	A1	Matsushita Electric Industrial Co., LTD.	04-10-1990	
	B10	EP	0 531005	A2	Anthony Price	10-03-1993	
	B11	JP	02220358	A	Sanyo Electric Co. LTD	03-09-1990	
	B12	WO	96/10538	A1	Zentrum Für Sonnenergieund Wasserstoff-Forschung Baden-Württemberg Gemeinnützige Stiftung	04-11-1996	Y (abstract)
	B13	WO	97/26683	A1	The University Court of the University of St. Andrews	07-24-1997	
	B14	WO	98/38648	A1	FMC Corporation	09-03-1998	
	B15	WO	98/46528	A1	Minnesota Mining and Manufacturing Company	10-22-1998	

OTHER ART — NON PATENT LITERATURE DOCUMENTS

Examiner's Initials	Cite No	Include name of the author (in CAPITAL LETTERS) title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, relevant page(s), volume-issue number(s), publisher, city and/or country where published.	Translation (Y/N)
	C3	ALMDAL, K., et al., Communications to the Editor, <i>Macromolecules</i> 1990, 4336-4338	
	C4	AMATUCCI, G. G., "Surface treatments of $\text{Li}_{1+x}\text{Mn}_{2-x}\text{O}_4$ spinels for improved elevated temperature performance," <i>Solid State Ionics</i> , 104: 13-25, 1997.	
	C5	ARMSTRONG, R. et al., "Synthesis of layered LiMnO_2 as an electrode for rechargeable lithium batteries," <i>Letters to Nature</i> , 381: 499-500, 1996.	
	C6	BARKER, M. C. et al., "The Preparation and Characterisation of Polystyrene/Poly(ethylene Oxide) AB Block Copolymers," <i>Colloids and Surfaces</i> , 8: 289-295, 1983.	
	C7	BATES, Frank S., "Block Copolymers near the Microphase Separation Transition. 2. Linear Dynamic Mechanical Properties," <i>Macromolecules</i> 1984, 17, 2607-2613	
	C8	BENSON, R. S. et al., "Synthesis and Characterization of Styrene/Isoprene/Ethylene Oxide Block Copolymers," <i>J. Polymer Sci.</i> , 23: 399-410, 1985.	
	C9	BILLMAN, J.F. , et al., "Structure and Phase Behavior in Five-Component Microemulsions," <i>Langmuir</i> 1990, 6, 611-620	
	C10	BILLMAN, J. F. et al., "Structure and Phase Behavior in Four-Component Nonionic Microemulsions," <i>Langmuir</i> , 7: 1609-1617, 1991.	
	C11	CANDAU, F. et al., "Synthesis and characterization of polystyrene-poly(ethylene oxide) graft copolymers," <i>Polymer</i> , 18: 1253-1256, 1977.	
	C12	CAPITAINE, F., et al., "A new variety of LiMnO_2 with a layered structure," <i>Solid State Ionics</i> , 89, (1986), pp: 197-202	
	C13	CHEN, L.Q., "Computer Simulation of Spinodal Decomposition in Ternary Systems, <i>Acta Metall. Mater.</i> ," 42(10): 3503-3513, 1994.	
	C14	DERAND, H. et al., "Synthesis and Characterization and Anionic Graft Copolymers Containing Poly(ethylene oxide) Grafts," <i>J. Polymer Sci.</i> , 33: 571-579, 1995.	

FORM PTO-1449/A and B (Modified NOV 22 2004)				APPLICATION NO.: 09/862,916	ATTY. DOCKET NO.: M0925.70087US00
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				APPLICANT: Anne M. Mayes et al.	
				GROUP ART UNIT: 1745	EXAMINER: Ruthkosky, Mark
Sheet	2	of	3		

C15	DING, J. et al., "Use of Crown Ether in the Anionic Polymerization of Propylene Oxide - 3. Preparation and Micellization of Diblock-Copoly (Oxypropylene/Oxyethylene)," <i>Eur. Polym. J.</i> , 27(9): 901-905, 1991.		
C16	Energy Lab Newsletter, July-December 1996		
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C19	GUMMOW, R.J., et al., "A Reinvestigation of The Structures of Lithium-Cobalt-Oxides with Neutron-Diffraction Data," <i>Mat. Res. Bull.</i> , 28, (1993), pp: 1177-1184		
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C21	JOHNSON, G. K. et al., "Dispersion Morphology Diagrams for Three-Phase, "Microemulsion" Emulsions. 2. "Disappearance" of Morphology-Transition Lines," <i>J. Phys. Chem.</i> , 98, (1994), pp: 12097-12102		
C22	JOHNSON, G. K. et al., "Electrical Conductivities of Three-Phase Emulsions. 2. C ₆ H ₁₃ (OC ₂ H ₄) ₂ OH/n-Tetradecane/Water with Wetting and Nonwetting Middle Phases," <i>Langmuir</i> , 10: 2523-2527, 1994.		
C23	KARIS, T. E. et al., "Rheology of the Lower Critical Ordering Transition," <i>Macromolecules</i> , 28: 1129-1134, 1995.		
C24	KHAN, I. M. et al., "Synthesis and Colloidal Behaviour of Polystyrene-b-Poly(Ethylene Oxide) Block Copolymer," <i>Eur. Polym. J.</i> , 23(3), (1987), pp: 191-194		
C25	KHAN, I. M. et al., "ABA Triblock comb copolymers with oligo(oxyethylene) side chains as matrix for ion transport ^a ," <i>Makromol. Chem.</i> , 190: 1069-1078, 1989.		
C26	KOETSCHAU, I. et al., "Orthorhombic LiMnO ₂ as a High Capacity Cathode for Li-Ion Cells," <i>J. Electrochem. Soc.</i> , 142, 9: 2906-2910, 1995.		
C27	LE CRAS, F. et al., "Lithium intercalation in Li-Mg-Mn-O and Li-Al-Mn-O spinels," <i>Solid State Ionics</i> , 89:203-213, 1996.		
C28	LE DORE C. et al., "Synthesis of Poly(Ethylene Oxide-Diene-Ethylene Oxide) Triblock Copolymers. Characterization and Use as Solid Polymer Electrolytes," <i>Eur. Polymer J.</i> , 27: 1297-1302, 1991.		
C29	LEIBLER, L. et al., "Theory of Microphase Separation in Block Copolymers," <i>Macro</i> , 13, (1980), pp: 1602-1617		
C30	LI, J. et al., "Synthesis and properties of poly(2,5,8,11,14,17, 20,23-octa-oxa-pentacosyl methacrylate)-block-poly(4-vinylpyridine)," <i>Makromol. Chem.</i> 192, 3043-3050 (1991), pp: 3043 - 3050		
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C32	LIPATOV, Y. S. et al., "Effect of Reaction Conditions on the Structure of Interpenetrating Polymer Networks. III. Kinetics of Semi-IPN Formation in the Presence of a Filler. Influence on Viscoelastic Properties," <i>Polym. Networks Blends</i> , 4(1): 9-14, 1994.		
C33	LOBITZ, P. et al., "Block copolymers of poly(ethylene oxide) materials for polymer electrolytes (transport properties)," <i>Journal of Power Sources</i> 43-44:467-472, 1993.		
C34	MATSUMOTO M. et al., "Ionic Conductivity of Dual-Phase Polymer Electrolytes Comprised of NBR/SBR Latex Films Swollen with Lithium Salt Solutions," <i>J. Electrochem. Soc.</i> , 141: 1989-1993, 1994.		
C35	MAYES, A. et al., "Microphase separations in multiblock copolymer melts," <i>J. Chem. Phys.</i> , 91(11), (1989), pp: 7228-7235		
C36	NAGAOKA, K. et al., "High Ionic Conductivity in Poly(dimethyl) Siloxane-co-Ethylene Oxide) Dissolving Lithium Perchlorate," <i>J. Polymer Sci.</i> , 22: 659-663, 1984.		



FORM PTO-1449/A and B (Modified)

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CONFIRMATION NO.: 9694

APPLICANT: Anne M. Mayes et al.

GROUP ART UNIT: 1745

EXAMINER: Ruthkosky, Mark

Sheet 3 of 3

C37	NAZRI, G.A. et al., "Synthesis, Characterization, and Electrochemical Performances of Substituted Layered Transition Metal Oxides $\text{LiM}_{1-y}\text{M}'_y\text{O}_2$ ($\text{M}=\text{Ni}$ and Co $\text{M}'=\text{B}$ and Al)," <i>Mat. Res. Soc. Symp. Proc.</i> , 453, (1997), pp: 635-464		
C38	NESTEROV, A. E. et al., "Filler effects on the compatibility and phase separation kinetics of poly(vinyl acetate)—poly (methyl methacrylate) mixtures," <i>Polymer</i> , 33: 619-622, 1992.		
C39	ODEGARD, R. et al., <i>In Situ</i> Formation of Polypyrrole/PEO- LiCF_3SO_3 Composites by Pulsed Potentiostatic Electropolymerization, <i>J. Electrochem. Soc.</i> , 136: 1811-1817, 1989.		
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C41	OHZUKU, T. et al., LiMnO_2 As Cathode For Secondary Lithium Cell, <i>Chemistry Express, Vol. 7, No.3, pp.193-196(1992)</i> Kinki Chemical Society, Japan		
C42	ROSENDALE, J.H. et al., "Rheology of Ordered and Disordered Symmetric Poly(ethylenepropylene)-Poly(ethylethylene) Diblock Copolymer," <i>Macro.</i> , 23, (1990), pp: 2329-2338		
C43	SMITH, D. H. et al., Electrical Conductivities of Three-Phase Emulsions. 1. Strongly Wetting Middle Phase, <i>Langmuir</i> , 10: 2516-2522, 1994.		
C44	VITINS, G. et al., Lithium Intercalation into Layered LiMnO_2 , <i>J. Electrochem Soc.</i> , 144: 2587-2592, 1997.		
C45	WATANABE, M. et al., Morphology and Ionic Conductivity of Polymer Complexes Formed by Segmented Polyether Poly(urethane urea) and Lithium Perchlorate, <i>Macromolecules</i> , 18: 1945-1950, 1985.		
C46	WILSON, D. J. et al., Synthesis of Block Copolymers Based on Oxyethylene Chains and Their Use as Polymer Electrolytes, <i>British Polymer Journal</i> , 22: 129-135, 1990.		
C47	XIE, H. et al., Molecular Design Synthesis and Properties of Six Kinds of Multiphase (Styrene-Ethylene Oxide) Copolymers, <i>Chinese J. Polymer Sci.</i> , 9: 1-13, 1991.		
C48	YAO, N., WAXS Studies on Crystalline Behavior of Polymethyl Methacrylate-Polyethylene Oxide Graft Copolymers and Their Ionic Complexes, <i>J. Macromol. Sci. Phys.</i> , B30(3):225-243, 1991.		
C49	YU, I. et al., "Theoretical Investigation of the Stability and Non-Empirical Quantum Chemical Calculation for the $\text{B}_6\text{H}_6^{2-}$ Anion and its Protonated and Lithium Derivatives," <i>Doklady Akademii Nauk SSR</i> , 291, (1986), pp: 635-638		

EXAMINE R

DATE CONSIDERED

#EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

*a copy of this reference is not provided as it was previously cited by or submitted to the office in a prior application, Serial No. __, filed __, and relied upon for an earlier filing date under 35 U.S.C. 120 (continuation, continuation-in-part, and divisional applications).

[NOTE - The Office hereby waives the requirement under 37 CFR 1.98 (a)(2)(i) for submitting a copy of each cited U.S. patent and each U.S. patent application publication for all U.S. national patent applications filed after June 30, 2003 and for all international applications that have entered the national stage under 35 USC 371 after June 30, 2003. See 37 CFR 1.491(b). For all patent applications filed on or before June 30, 2003, copies of cited U.S. patents and patent application publications are still required unless an eIDS is filed. Copies of all other patent(s), publication(s), or other information listed must still be provided, even if it was previously submitted to, or cited by, the U.S. Patent Office in an earlier application, unless the earlier application is identified by the IDS and is relied upon for an earlier filing date under 35 U.S.C. §120, and the copy was provided in the earlier application.]